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Critical Digest.

ON EXOPHTHALMIC GOITRE.

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JOFFROY[1] gives *in extenso* a series of clinical lectures delivered in 1891. He surveys carefully the whole enormous range of ascertained clinical facts, and the paper constitutes the fullest and minutest general account with which we are acquainted in any language. It is only possible to glance at some of his points. One patient, selected as a clinical example, shewed marked pulsation of the thyroid. But this is only one factor in its alteration; the purely vascular dilatation of the thyroid only exists in theory, and in books, and is never found clinically or microscopically; there is always a distinct structural change in the gland to be appreciated during life by careful manipulation; a hard consistency, usually localised and frequently nodular in distribution, these nodules being centres of inflammation or of colloid infiltration, and this conclusion is always confirmed by examinations after death if properly conducted. We do not understand M. Joffroy to deny that vascular engorgement of the thyroid does not take place frequently in healthy persons, particularly women, but that such engorgement cannot produce exophthalmic goitre. Considerable real increase may take place in the thyroid, while it remains inappreciable during life. Variations in size of the gland occur very rapidly in Graves' disease. But the point he insists upon most strongly is that the thyroid may be profoundly altered in structure and yet not increased in volume; with this we are quite in accord.

Dilatation of Arteries.—As is well known, the carotids frequently pulsate forcibly, and pulsation may be seen in the optic disc; pulsation may even be detected in the aortic arch behind the sternum. Similar pulsation is occasionally found in the abdominal aorta, but the condition is rare; Charcot described it in the earliest known case in France, and Kahler reports abdominal pulsation accompanied by paroxysms of pain. We remember that Dr. L. Guthrie[2] asserted that this feature was by no means uncommon, and he sends us a note of a quite recent observation, in which the pulsation was so violent as to be visible through the bed-clothes; it ceased abruptly at the umbilicus. The patient, a woman of 60, suffered from severe epigastric pain, and gastro-intestinal crises. Rarer still are pulsations of the arteries in the arms and legs.

Photophobia is an occasional symptom, present to a marked degree in a patient of Rendu's. Joffroy found it present, but associated it in his case with paroxysmal neuralgia of the face.

He breaks new ground on the question of *Von Gräfe's symptom.* The condition has never been accurately defined even by Von Gräfe. Joffroy concludes that we must understand by the term a failure of the normally even rate of movement executed by the eyeball and the upper eyelid, and this may be disturbed in two ways: (1) By a diminution of the motility of the globe itself, which thus follows the upward movement of the lid too slowly; (2) by a paresis of the lids, which consequently move more slowly than the globes in either direction.

We are convinced that neither condition is as common as some authorities (notably Von Gräfe) have asserted; and the former condition is, we think, conspicuously rare. Joffroy offers no speculations as to the seat or nature of the lesion producing these eyelid symptoms, but it may not be out of place to consider the matter briefly. It is better, we think, to group Gräfe's sign and Stelwag's sign together as due to modification of the same cause. Von Gräfe himself ascribed the impaired movement to spasm in the "muscle of Müller," supplied by the sympathetic; and Gowers[3] regards it as caused by either spasm in Müller's fibres or in the levator palpebræ, probably the latter. We fear we cannot adhere to such an assumption of long continued spasm, unless due to paresis of opposing muscles.

The clinical facts are these:—

(1) Sometimes a *relative* over-action of the levator palpebræ (supplied by the third nerve), or of the unstriped muscle of the lids supplied by the sympathetic.

(2) A frequent paresis of the upper part of the facial muscles, the oculo-facial group (frontalis, corrugator supercilii and orbicularis).

(3) A frequent paresis of all the external ocular muscles.

Now the fibres which supply the oculo-facial group of muscles are derived not from the seventh nucleus, but from the oculomotor nucleus, joining the seventh nerve by way of the posterior longitudinal bundle. A slight paralytic condition in this nucleus may not be sufficient to impair the movement of the globe (though it often is sufficient), but may suffice to affect the less differentiated movements of the oculo-facial muscles, and produce in them the paresis of that group, which we know does exist, or at any rate to disturb the relation of movement in those muscles to that of the muscles of the eyeball. Such cases have no connection with the facial paralysis often observed in Graves' disease. This is due to affection of the seventh nucleus or to change in the trunk of the seventh itself. The latter was certainly the case in our own patient,[4] who had Gräfe's sign before and after the general facial paralysis, which was clearly secondary to middle ear catarrh.

Ferri[5] advances the theory that Gräfe's sign is due to mechanical shortening of the levator palpebræ, from the increased volume of blood vessels distributed in the muscle substance. This may possibly be the case when the symptom has been continuous for a long period, but the irregularity and inconstancy of the condition make it impossible that such a coarse unvarying lesion should be the usual cause.

Muscular vibration of the eyelids was found in one patient; this is common enough in hysterical patients and in persons under hypnotism, and even in ordinary debilitated subjects.

Three patients under study had marked paresis of the upper part of the face, especially of the levator palpebræ; but this paresis only affects involuntary combined movement, as in suddenly directing the eyes upwards; voluntary employment of the muscle, as in intentional wrinkling of the brows, is found unimpaired. This is the reverse of the condition often found in hysterical subjects. We may remark that Vigouroux demonstrated some years ago the frequency of impairment of electrical contractility in Graves' disease.[6]

Monoplegias.—In some cases the movements of the jaw are distinctly enfeebled. Debove and Ballet described an instance of intermittent paralysis of the tongue and soft palate.

After a brief allusion to paraplegias M. Joffroy concludes the subject of paralyses by remarking that ophthalmoplegia is most common, then paralyses of the face, the jaw, the tongue, and velum palatæ; paralysis of the arms are less common and paraplegia rarest of all. This comparison is, we think, not well founded; both from literary researches and our own personal observation paresis, and even absolute paralysis of the legs is by no means uncommon, and we think three classes of this condition may be distinguished.

(1) Cases of astasia-abasia, not of true paresis.

(2) Cases of hysterical type.

(3) Cases due to interruption of motor impulses low down in the motor tract, either spinal or peripheral. It is impossible here, however, to develop our views on this point. The paralyses of Graves' disease present a wide field of study as yet little cultivated. The difficulty is to distinguish between Graves' disease, pure and simple, and a combination with hysteria; but, M. Joffroy insists, a large proportion of "Basedowiens" do not manifest any of the ordinary features of hysteria, such as alterations in field of vision, hysterical crises, localised anæsthesias, &c.

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Joffroy remarks on the abolition of patellar reflex in his patient, only to insist on the care necessary to exclude the supposition of co-existent locomotor. This, we think, is scarcely giving the symptom its true value, for Marie found it usually diminished or absent, and in investigating the point for the last few years we have found a lowered or absent reflex in nearly all severe cases.

Ophthalmoplegia Externa.—Like Ballet he distinguishes two classes of patients who present ophthalmoplegia externa: (*a*) One in which undoubted "hysterical" features are found, in whom it is impossible to assign the paralysis to either especial neurosis; (*b*) a class, less common in his belief, who cannot be considered hysterical. Paralyses of other cerebral nerves sometimes accompany ophthalmoplegia, viz., the fifth, seventh, and even the twelfth (Jendrassik).

(For bibliog. on this subject *v.* BRAIN, part lvii., vol. xv., p. 121.)

Cutaneous Rashes.—After a review of the already well-known forms of eruption or changes in pigmentation, he describes a double form of rash to us hitherto unknown. This consisted of an eruption appearing on the feet and legs resembling the later stages of the rash of measles, and mixed with this appeared a few days later a patch of small purpuric spots. This form of rash is, we say, hitherto undescribed, but by a coincidence, almost incredible, and well worth the consideration of the Psychical Research Society, on the same evening that we were reviewing this part of M. Joffroy's paper a patient of ours developed this rash suddenly.[7] She came to us two days later; there were then a few patches of purpura on the cheeks and one elbow, and over the lower part of the face and neck a large crop of raised dusky papules, resembling measles; this was accompanied by pain over the seat of distribution of the rash. The spots faded and were succeeded by a second crop of papules a week afterwards. This patient is the subject of previous goitre, and the daughter of a myxœdematous mother.[8]

Tetany.—M. Joffroy corroborates the observations of Dr. H. Mackenzie as to the frequency of spastic contractions of the hands and feet, and inclines to the opinion that they are of thyroidal origin, similar in fact to the tetany, which may supervene after removal of the thyroid.

Muscular Atrophy.—In most cases of paralysis there is no impairment of muscle nutrition. Vigouroux has described a case in which atrophy accompanied paraplegia: Dreyfus Brissac, Du Cazal, Hüber and Möbius give similar examples. Joffroy remarks that with the exception of Hüber's case, in which the occurrence of reaction of degeneration was noted in the affected arm, the cases are insufficiently reported, and there is no note as to electrical reactions.

Psychosis.—M. Joffroy's pupil, Raymond Martin,[9] collected twenty-eight cases of mental aberration in exophthalmic goitre; he lays great stress on the variety of mental changes found, and deduces the conclusion that these changes are the outcome of disturbed cerebral involution, coupled with hereditary predisposition to psychic abnormality; that there is not, in fact, any definite type of amentia, and that the cardio-vascular condition is insufficient of itself to produce change in a normal brain. We are uncertain how far this paper is inspired by M. Joffroy himself; probably to no great degree, for in a previous paragraph the professor sums up shortly the prevailing mental changes in Graves' disease, which, though they rarely amount to mania, are yet very distinct psychoses; viz., a constant restlessness, variability of temper, with alternations of excitement and depression. This alternation is very marked, and all the more marked because, though acute mania is by no means uncommon, true alternating mania (the "folie à deux" of the French) is almost unknown.

Joffroy and Achard[10] give a full account of six cases with *post-mortem* examinations of each. In five of them the thyroid was carefully examined histologically; it is only during the last few years that this has been done, and the observations in this paper are fully confirmed by the fine series of sections exhibited at his Bradshaw lecture by Professor Greenfield (1893). Joffroy's cases showed that even when the thyroid is not demonstrably enlarged during life, it was in all cases but one found enlarged after death, and in this one instance, though not enlarged, it was profoundly altered. We laid great stress last year on the fact, we believe undeniable, that all cases of Graves' disease, if properly watched, do show variations in the size of the thyroid, a turgescence similar to that of other glands during active secretion.

(2) The thyroid presents great diversity of change in all these cases. In one there was marked cystic dilatation of the vesicles. In three others the most important feature seemed to be the disappearance of the colloid material in the vesicles, or its replacement by small round cells, a condition we may regard as a catarrhal proliferation of the vesicular walls. In one instance there was a considerable formation of new adenomatous cell tissue, while the interstitial trabeculæ had undergone more or less fibroid degeneration, and this may be accompanied by œdematous swelling and infiltration of the fibrous tissue by leucocytes and interfibrous hæmorrhages.

Joffroy remarks that there is no hard and fast line of distinction between the condition of the thyroid in exophthalmic goitre and simple bronchocele, and he claims that this is not unlikely as so many cases are now on record in which apparently simple goitre has been followed by symptoms of Graves' disease. This view is quite in accord with our own, and to it we shall allude again. He raises the question whether the varieties of co-existent changes in the thyroid do not imply that the whole symptom-complex is in reality produced by an alteration in secretion in that gland dependent on one of several structural alterations.

We were, ourselves, impressed by the idea, on examining Professor Greenfield's specimens, that the various changes demonstrated (destruction of colloid, cell proliferation, adenomata, cystic and finally fibroid degeneration) were truly stages in an alteration beginning in catarrh, and ending in fibrosis or cystic degeneration, comparable to the same range of changes seen in the ovary or lung.

These six cases show a high proportion of concomitant distinct nervous conditions, viz., hysteria (1, 4 and 6), syringomyelia (3), locomotor (4), melancholia (2). The sixth case presented typical myxœdema supervening on Graves' disease. As the myxœdema advanced the goitre and exophthalmos, both previously well marked, subsided. As to the relation of the two conditions, M. Joffroy will not commit himself definitely, but he inclines to the belief that the coincidence is not accidental, but that in such cases (which are now not rarely known) an early catarrhal, or proliferation stage, in the thyroid, which is accompanied by the symptoms of Graves' disease, is gradually succeeded by progressive filroid degeneration of the gland, which, of course, produces myxœdema. We fail to see how this view can be disputed. In his myxœdematous patient the thyroid had undergone complete fibrosis, a few small cellular masses representing all that was left of the vesicles. The examination of the nervous system in all these cases was exhaustive, and disclosed these points.

Case 1.—Nervous system showed no changes.

Case 2.—The only change found was some Wallerian degeneration of the left vagus.

Case 3.—Syringomyelia.

Case 4.—Typical tabes dorsalis.—We review this case in detail later on.

Case 5.—The cervical spinal cord showed some sclerosis of Goll's columns, and columns of Burdach. There was no lesion in the restiform bodies.

Cases 1 and 4 both showed degeneration in several peripheral nerve trunks. We wish to draw attention to this as confirming our own observation that clinical symptoms of peripheral neuritis are by no means rare in Graves' disease.[11] Greenfield also observed changes scattered all over the nervous system, which (from their nature and distribution) resemble those produced in tetanus and hydrophobia, and suggest their dependence on an irritative toxic action.

O. Hezel[12] gives a full and minute account of a *post-mortem* examination of a typical case, a woman aged 45. The microscopic examination was full, and all the details of staining are given, so that we are able to say that the best methods were used. The medulla, sympathetic trunks and ganglia, the vagi, the greater number of cerebral nerves, the thyroid and muscular substance of the heart were all carefully investigated. No changes were discovered in the restiform bodies or solitary bundles. The changes in the cervical sympathetic ganglia were marked, and though limited in extent, affected portions of both sides. The main changes were :—

(1) Infiltration by round cells of the walls of the small vessels, with occasionally narrowing of their lumen.

(2) Small hæmorrhages.

(3) Nuclear proliferation of the connective tissue capsules of

the ganglion cells, often coupled with round cell infiltration in the neighbourhood.

(4) Localised degeneration of the interstitial connective tissue, often accompanied by round cell infiltration.

(5) Degenerative changes in a number of ganglion cells, exhibiting different stages of atrophy.

The conditions described here are exactly those found by Professor Greenfield in the two cases in which he has examined the sympathetic "by modern methods;" and there can be no doubt, as he says, that the sympathetic ganglia are the seat of a subacute inflammatory process. We must not, however, be too ready to accept this explanation in the face of the fact noted by Hale White[13] that the infiltration of sympathetic ganglia, apart from Graves' disease, is no uncommon feature.

The cardiac muscle was carefully examined with negative result, though there was obvious cardiac failure during life. The thyroid was considerably enlarged.

There was striking proliferation of the epithelial cells in many of the acini. The cells stand crowded together and have a cylindrical form. Many of the cells are increased in size, and the nuclei are much enlarged. The acini are frequently stuffed with epithelial cells, so that the resemblance to the catarrh of a mucous surface is at once suggested. The whole change, however, resembles not so much a simple hyperplasia as an adenomatous condition. The whole description, we should say, tallies with that of Prof. Greenfield's; the change of epithelial lining from a cubical to a columnar form, the increased proliferation similar to that seen in adenomata, and the masses of cells lying in the spaces, are described exactly as in the late Bradshaw lecture.

Professor Thomson[14] reviews eight consecutive cases in his private practice. He dismisses fright and nervous shock as a true factor in causation, being much more often an accidental event in the course of a chronic malady which seems to date its beginning. He remarks that simple irritation of the glossopharyngeal and superior laryngeal nerves is sometimes accompanied by general muscular tremor, and supports this by an example from his own practice, when the impaction of a fish bone caused such tremor, while its removal at once stopped the symptom. From this he argues that the tremor of strumipriva, which occurs early after the operation, is the result of direct surgical injury to the superior and recurrent laryngeal nerve branches. But we must point out, that this is ignoring the fact that tremor occurs also in the early stages of idiopathic myxœdema, and to argue thus from one instance where an alarming accident had suddenly occurred, with its attendant terror, is premature.

He then reviews, only to discredit them all, on the ground of their inconstancy, the various described lesions found in Graves' disease, and the experiments of Filehne, Seeligmüller and Bienfait. He details the progress and relapses of a patient, the subject of severe diarrhœa, in whom alternate koumiss and meat diet were pursued; the meat diet invariably produced severe relapses, ultimately fatal. He lays great stress on the frequency of diarrhœa in Graves' disease, and seeks to prove that the whole condition is due to an over-stimulation of the thyroid by some toxin, formed in the intestines from the decomposition of nitrogenous foods. Great stress is accordingly laid on the value of fermented milk, sold in New York under the name of "Matzoon." He recommends treatment by intestinal antiseptics, such as β naphthol and ichthyol. The whole paper is very suggestive and practical; and we have pointed out elsewhere our own belief that certainly some of the secondary features of this disease are due to intestinal auto-intoxication, though we are unable to follow Dr. Thomson along the whole line of his belief.

MM. Joffroy and Achard[15] discuss fully the coincidence of exophthalmic goitre and locomotor ataxy; they give an account of a patient, a woman of 49, in whom the symptoms of the two disorders progressed side by side. Ataxia was first discovered in 1879 and proptosis was then present. In 1885 the inco-ordination was marked, and muscular sense quite absent; the reflexes were abolished, there was typical swelling of the left knee, with subluxation of the joint and destruction of the internal condyle; Argyll Robertson pupils were present. The pulse rate was rapid and marked exophthalmos existed. She remained in a stationary state while under observation, and eventually died in 1891 of pulmonary tuberculosis.

A *post-mortem* examination was made, disclosing tuberculosis of both lungs. The thyroid was enlarged (weighing forty-six grammes): it showed numerous cysts, while many of the vesicles contained instead of colloid material numerous small cells; the interstitial connective tissue had undergone some fibrous increase.

The spinal cord presented the typical changes of tabes dorsalis. In the cervical region the degeneration was limited to Goll's columns. It could be traced up as far as the nucleus of the restiform bodies, but the restiform body, the solitary bundle, and other parts of the medulla were intact.

The sympathetic (right side only examined) was healthy.

The right vagus showed a few fibres in a condition of Wallerian atrophy. Various peripheral nerve trunks showed slight degenerative changes.

This is the first case combining the two conditions which has been fully examined *post-mortem.* Other cases have been reported clinically.

In this case the presence of locomotor is beyond dispute, while the examination of the thyroid, coupled with the clinical signs, also places the existence of exophthalmic goitre beyond cavil. For undoubtedly various symptoms may occur in locomotor resembling those of the other affection, such as permanent tachycardia, exophthalmos (due to paresis of ocular muscles), gastro-intestinal crises, and cutaneous anæsthesia; thyroid changes are quite unknown. Leaving out of question such cases of locomotor presenting these symptoms, there is no doubt that the spinal sclerosis and true exophthalmic goitre do co-exist. The problem is the connection between the two. The supposition has been made that the spinal degeneration has spread upwards and involved the medulla. This important case negatives such a supposition, and confirms the view that the cardio-vascular symptoms are merely by accident associated with the spinal change, as they may be associated with syringomyelia. The integrity of the restiform bodies is highly important, as opposing the theory advanced by Mendel, that those structures are the seat of the lesion in Graves' disease.

Another point of interest is the presence of tuberculosis. From our acquaintance with *post-mortem* records of Graves' disease we are disposed to say that tubercle is very rare. Greenfield raises the same question in contrasting Graves' disease and myxœdema (in which tubercle frequently appears). But we are not yet in a position to be dogmatic on this point.

Reymond[16] reports the case of a woman of 45, in whom acute symptoms of exophthalmic goitre came on very suddenly, owing to severe anxiety, and proved fatal in 14 days. The temperature ran up steadily during observation, reaching 104° on the third day. She had had continuous tremor for more than a year before she came under observation, so that this must, we think, be regarded as a "fruste" case terminating suddenly, rather than an acute case of very short duration. At the termination there was constant vomiting and dysphagia, even to liquids. *Post-mortem* mitral incompetency, which had manifested itself during life, was discovered.

The thyroid was enlarged, contained one cyst, and microscopical examination showed hyperplasia of the epithelial cells, but none of the characteristic follicular structure. We presume this may be taken to correspond to the catarrhal hyperplasia described by Greenfield and others.

The thymus was present. This is by no means uncommon. Not only is the thymus persistent in many cases of Graves' disease, but in two instances it has been at least four inches long, and in Mr. Spencer's case it was larger than the head of the normal pancreas.

The peri-bronchial and tracheal lymphatic glands were also enlarged.

F. Müller[17] reports three cases of great rapidity and acuteness, all dying two or three months after the beginning of the illness; a fourth patient was discharged apparently dying in five months. He also reports a case of ten months' duration (sub-acute) which ended very rapidly. Several of these presented bulbar symptoms (as Reymond's case with dysphagia), irregular fever, and grave psychosis, such as restlessness, somnolence, delirium, and delusions of a terrible kind. Death occurred in all from cardiac failure.

All four cases presented *post-mortem* hyperplasia of the thyroid, and enlargement of the cervical lymphatic glands, with numerous minute hæmorrhages in the glands. Three showed small recent hæmorrhages in the medulla, chiefly in the rhomboid fossa, and near the vagus nuclei. One of them had considerable degeneration of the trunks of the vagi, the recurrent laryngeal, and cardiac nerves. In one only some slight œdema of the spinal cord and bulb could be detected, and no other nervous lesion.

Müller sums up recent theories on the subject thus:

(1) The sympathetic must be definitely thrown over on clinical, physiological and pathological grounds.

(2) The medullar theory, more usually accepted, he pronounces more rational, but insufficient to explain the whole clinical picture.

(3) That the cerebrum is affected is undoubted from the frequency of psychoses, convulsions, hemiplegia and hemianopsia.

(4) That the cord also suffers is proved by the frequency of loss of patellar reflex, and the occasional co-existence of tabes, syringomyelia and Duchenne-Aran atrophy.

He concludes that the morbific agent is not limited to the medulla, but affects all the nervous centres, including probably the sympathetic. The variations and irregular progress of the disease militate against any "organic" lesion; the bulbar hæmorrhages are of no moment, being probably produced in the act of death. The inconclusive characters of his *post-mortem* are in favour of a purely "functional" disturbance of the nervous centres. Two factors in causation he considers very important: first, a neurotic predisposition either hereditary or acquired (by depression or shock); more important still, some thyroidal change. In support of the latter point he cites the now numerous cases of old-standing goitre preceding definite symptoms; the value of surgical interference: the obvious relation of myxœdema with exophthalmic goitre: the fact that the goitre is not merely hyper-vascular, but is always found to have undergone a definite hyperplasia of its tissue, and lastly, the very constant enlargement of the cervical lymphatic glands.

He deduces the supposition that the train of phenomena is the result of a functional disturbance of the thyroid, the altered secretion of which acts as a toxin, first to the lymphatic glands, and ultimately to the whole nervous system.

As evidence of our full acquiescence in these views, we may perhaps point out that an almost precisely similar summary formed the conclusion of our paper at the Medical Society in October (1893), when we had not had the advantage of seeing Professor Müller's article.

Bruhl,[18] in a long and verbose paper, loses himself in a forest of fallacies. He reports in detail the history of a woman, who died aged 61. She had at 39 developed a goitre, and came of a goitrous family, also highly neurotic, and from a goitrous district. Seventeen years after the appearance of the goitre exophthalmos was noticed, and she subsequently showed a rapid and irregular heart, and œdema of the legs. A careful *post-mortem* revealed a thyroid studded with cysts, and largely invaded with fibrous tissue, the heart hypertrophied, with some thickening of the aortic valves and the vessel itself. Nothing abnormal was discovered in the central nervous system save a small hæmorrhage in the fourth ventricle; no details are, however, given as to the histological methods employed in this examination. M. Bruhl will commit himself to no definite opinion, but is unwilling to accept this case as one of true exophthalmic goitre, and seeks to relegate it to a class of "false exophthalmic goitre," in which symptoms resembling the typical symptom-complex are presented by patients suffering from simple goitre. His grounds of argument are the district origin of his patient, her previous goitre, her age, the pathological condition of the thyroid, and the organic condition of her heart. He is, however, doubtful whether to assign her cardiac disturbance to thyroid pressure or to muscular degeneration in the heart itself.

There is no question that in goitrous districts (*e.g.*, Canton Vaud, according to Rendu) exophthalmic goitre is unknown, but this may only mean that among a mountain peasant population such a neurosis is uncommon. There is no evidence to show that, given other hereditary neuroses, Graves' disease may not be found in the midst of endemic goitre, and the number of instances is now considerable in which old-standing goitre has been followed after many years by the signs of exophthalmic goitre.[19]

We have no reliable data as to how late in life exophthalmic goitre may appear, but Russell Reynolds remarks: "Although more than half of the cases (forty-eight in number) were under thirty, yet the influence of age is reduced to *nil* if regard be paid to the number of people living in the succeeding decades."[20]

Of thirteen cases of our own, carefully watched for some years, three presented their earliest symptoms from 40 to 50 years of age, and one at over 50.

His remarks on the pathological conditions of the thyroid will not bear the light of modern researches. Professor Greenfield and (we have just seen) M. Joffroy both show that cystic and fibroid changes are the rule in old-standing Graves' disease; and the notion that the goitre is usually "pulsatile" or "vascular," is entirely erroneous.

Bruhl insists that Basedow's disease may be well marked without goitre, and may even ensue after ablation of the thyroid.[21] It is, however, very easy to leave behind a fragment of thyroid or an accessory gland.

Our own reading of this instructive case is that it was a case of ordinary Graves' disease, occurring in a goitrous subject, of neurotic ancestry and personally neurotic tendency; that the preponderance of cardiac symptoms were due to the existence of ordinary cardiac and aortic degenerations, natural at such advanced age. Unfortunately, no note is made of the presence or absence of many ordinary signs, such as gastro-intestinal disturbances, though it must be remarked that no tremor was found present.

Rockwell[22] considers the therapeutics of the disease from a study of forty-five consecutive cases. Electricity is in his opinion the most valuable reagent. Convinced of the value of local galvanisation, directed to the sympathetic and præcordium, he insists that it should be accompanied by general faradisation. This corroborates the views expressed by Dr. H. Lewis Jones ("Medical Electricity," p. 312) and Max Weiss.[23] Rockwell also insists that general galvanisation should be employed also, side by side with the other methods, which we find to be the opinion of Mr. Cardew;[24] but Rockwell would employ far stronger currents than have been used formerly. For application to the sympathetic and vagus, instead of two or three milliampères (Cardew) he has employed ten or fifteen, though it is rarely possible with ordinary electrodes, to exceed this limit. For greater strengths large electrodes of clay are to be applied to the nucha (cilio-spinal centre), and the solar plexus: with such terminals he has frequently used currents of *sixty* milliampères, finding great benefit. Such currents are, of course, only admissible in the hands of trained experts, and would require caution and judgment.

Professor Putnam[25] has produced several papers on this subject lately, dealing chiefly with the question of operation on the thyroid. He gives a tabular analysis of thirty-one collected cases of operation, mostly partial or complete thyroidectomy, and attacks the two questions of the value and the danger of operation. Freiburg,[26] of Cincinnati, has collected forty-one cases, and puts the mortality at six per cent., while undoubtedly a great improvement in results has accompanied the adoption of more perfect surgical methods in the last few years. But in spite of this improvement, and the comparative restoration to health which has often ensued, there are special dangers. Patients are liable not only to sudden death within a few days of operation, but they may suffer extreme prostration, high pulse rate, laryngeal paralysis, dyspnœa, vomiting, and pulmonary complications, even when the wound is quite satisfactory.

Paresis of the larynx is very common; any pre-existing paresis contra-indicates operation, and careful examination by a laryngologist should be made beforehand. Putnam thinks that goitrous patients do not always bear anæsthetics badly, though we find[27] that many Swiss surgeons have abandoned anæsthetics in large operations on the thyroid. There seems no evidence that the nature of the thyroidal enlargement has any bearing on the result, and the forms of change in the gland are numerous. Nearly all the cases have been those of large goitre with urgent symptoms, and we yet need information as to the effect which is produced by operation on small goitres in subjects with mild symptoms.

Putnam raises the question whether the dangerous symptoms are not due to rapid absorption from the divided gland of a large amount of thyroid secretion. This is by no means improbable, and the operation practised by M. Poncet (of Lyons) seems calculated to prevent this, as also to avoid injury to the recurrent laryngeal nerve.[28] This procedure to which the name "exothyropexia" is given, consists in shelling out the gland, through a median incision, with the fingers and blunt instruments, and leaving it covered by dressings, and attached by its deep connections on the surface of the neck, where it dries up and atrophies. This operation is less applicable to cystic goitre than to general enlargements.

In a monograph shortly to be issued,[29] of which we have been favoured with an advanced copy, Dr. Edward Blake reviews some of the evidence bearing on the etiology of myxœdema and the goitres. He assumes as established that exophthalmic goitre is a toxic neuritis of the medulla, extending at times to the pons and cervical sympathetic. He lays stress on the resemblance between the effects of this toxine, whatever it may be, and those produced from the absorption of pus ; while he seeks to prove that a variety of conditions, such as rheumatism, exophthalmic goitre, endemic bronchocele, are all due to an organic poison akin to the nitrites in their action on the medullary vasomotor centres, and that in a large proportion of cases their toxines are derived from the slow absorption of pus, from carious teeth, or diseased genital organs (in the female). The brochure is suggestive, and the evidence is drawn from a wide range of literature, but it is ill-arranged and not fully digested. Dr. Blake fails, we think, to disprove that all cases of so-called Graves' disease show primarily some thyroidal enlargement, and that though the question is still *sub judice* the balance of evidence is in favour of a thyroidal origin for the nerve poison.

Conclusion.—It is obvious that all over Europe there is a gradual growth of the opinion that this symptom-complex is due to the production (or non-elimination) in the thyroid itself of some toxin, which acts on the whole nervous system, even to the periphery, though the brunt of its action falls on the vasomotor centres of the medulla, and some neighbouring centres. This position is adopted in Germany by Möbius, Wette and Müller, in France by Joffroy and Renaut, in England by Byrom Bramwell, George Murray and Greenfield. The question of the exact *rôle* played by the thyroid change is difficult ; it is clear that all morbid changes in the thyroid are not operative to produce Graves' disease, but all the cases (in which the gland has been properly examined) show two common factors—cell proliferation, and diminution of colloid. Even so we are in the dark as to whether this morbid change is primary or secondary to some vasomotor disturbance elsewhere, and also as to whether the alteration in thyroid secretion will produce the same effect in a healthy nervous system: probably some nervous systems are more susceptible than others to the toxic influence, just as they are to alcohol and lead; in fact the susceptibility of young women to plumbism and Graves' disease is strikingly similar.

REFERENCES.

1. *Progrès Médicale*, xviii., December 23, 1893.
2. *Medical Society's Transactions*, October 16, 1893.
3. "Diseases of the Nervous System," 1st Ed., ii., p. 818.
4. BRAIN, lvii., p. 122.
5. *Giorno del R. Accad. di Med. di Torino*, February, 1892.
6. *Progrès Méd.*, 1887, p. 318.
7. *Med. Society's Trans.*, October 16, 1893.
8. *Australian Med. Journ.*, December, 1893.
9. *Thèse de Paris*, 1890.
10. *Arch. de Méd. Experimentale et d'Anat. Pathol.*, No. 6, November 1, 1893.
11. *Med. Soc. Trans.*, *loc. cit.*
12. *Deutsche Zeitsch. f. Nervenheilkunde*, iv., p. 353.
13. *Journal of Physiology*, viii., No. 2, p. 70; and x., No. 5, p. 345.
14. *New York Med. Journ.*, June 3, 1893.
15. *Archives de Médicine Experimentale*, vol. v., No. 8, p. 404.
16. *Bull. de la Soc. Anatomique de Paris*, ser. 5, vol. vii., No. 18, p. 456.
17. *Deutsch. Arch. f. Klin. Med.*, p. 335, 1893.
18. "Des rapports du Goître simple avec la maladie de Basedow; des faux Goitres exophthalmiques," *Gaz. des Hôp.*, p. 683, 1893.
19. LASVENES. *Thèse de Paris*, 1891, 3 cases. MAUDE. *Med. Soc. Trans.*, *loc. cit.*, 7 cases.
20. *Lancet*, i., 1890, p. 1055.
21. CHRETIEN. *Thèse de Paris*, 1888.
22. *New York Med. Record*, September 30, 1893.
23. *Centralb. f. Ges. Therap.*, July, 1892.
24. *Lancet*, p. 1, ii., 1891.
25. *Journal of Mental and Nervous Disease*, December, 1893. *Boston Med. and Surg. Journal*, cxxx., No. 7, p. 153. Professor Putnam has also courteously favoured us with an advanced copy of a paper to appear shortly in the *Journal of Mental and Nervous Disease.*
26. *Med. News*, August 26, 1893. Abst. *Brit. Med. Journ.* Epit., 1893, ii., p. 78.

27. See discussion at Roy. Med. and Chirurg. Soc., November 14, 1893.
28. *Gaz. des Hôp.*, p. 362, 1894.
29. "Myxœdema, Cretinism and the Goitres," 8vo, Bristol, 1894.

BIBLIOGRAPHY OF SPECIAL POINTS.

(*Connection between Graves' disease and Locomotor.*)

Barié. *Bull. et mém. de la Soc. Méd. des Hôp.*, December 14, 1888, p. 503.
Joffroy. *Bull. et mém. de la Soc. Méd. des Hôp.*, December 14, 1888, p. 514.
Charcot. "Leçons du Mardi," ii., p. 243.
Ballet. *Bull. et mém. de la Soc. Méd. des Hôp.*, 1889, p. 76.
Marie. "Leçons sur les maladies de la moëlle," p. 287.

(*Graves' disease and Myxœdema.*)

Kovalewski. *Arch. de Neurologie*, 1889, xviii., p. 427.
Sollier. *Rev. de Médecine*, 1891, p. 1000.
Harris & Wright. *Lancet*, 1892, i., p. 758.
Von Jacksh. *Soc. des méd. allemands de Prague*, January, 1893.
Ord & Bowles. *Trans. Med. Soc. of London*, October 16, 1893.
Corkhill. *Brit. Med. Journ.*, January 7, 1893.
Gowers. "Dis. of Nervous System," ii., p. 880.
Hartmann. *France Méd.*, 1884, June 17, 19.

(*Persistent Thymus.*)

Möbius. "Memorabilien," xxvi., 8, 1881.
Hilton Fagge. "Medicine," i., p. 1012.
Johnstone. *Journ. of Mental Sci.*, p. 521, 1884.
Hale White. *Brit. Med. Journ.*, ii., 1886, p. 151.
Mosler. *Greifwald Klinik*, 1889.
Lasvenes. *Thèse de Paris*, 1891.
Spencer, W. *Patholog. Soc. Trans.*, 1891.

normal standard of the visual field. In cases of hysterical hyperæsthesia the disturbances in the visual field are of secondary importance; the deviations from the normal being so slight and uncertain that they could not be regarded as peculiar to that condition.

In cases classified as major hysteria there was no reversal (of red and blue fields) and no anæsthesia (in two there was contraction of the visual field), whilst in the "local" hysterias, although there was no anæsthesia, there was more or less complete transposition of the red and blue lines.

In cases classified as neurasthenia, the changes in the visual fields were not very marked, with one exception, in which the fields of vision were characteristically hysterical in composition.

In the others, if they exhibited any change it was that one most often seen in anæsthesia of the retina as described by Wilbrand. In a case of spinal injury there were characteristic (hysterical) changes in the normal appreciation of colours. The authors conclude:—

(1) Achromatopsia is not present in the American cases.

(2) Reversal of the normal sequence of the colours so that the field for red is the largest usually accompanies anæsthesia, but disturbance of colour sense is not necessarily associated with anæsthesia.

(3) The field for green is relatively more, and more often contracted than the others.

(4) Colour sense alterations are more common in hysteria than in neurasthenia, but though of diagnostic importance this is not a certain distinction, as they may be absent in typical hysteria and present in neurasthenia.

(5) One case seemed to point to the possibility of an abnormally acute colour sense in the rare cases of one-sided or general hysterical hyperæsthesia.

(6) The disturbance of colour sense is not proportionate to the severity of the hysterical manifestations.

(7) The most frequent changes in the visual fields in hysteria are:—

(*a*) Simple contraction of fields for colour but not for form.

(*b*) Contraction of fields for both; the field for green the most.

(*c*) Partial or complete reversal of normal sequence in size of colour fields, the red being most commonly the largest. The colour fields may be normal in extent or contracted.

(*d*) Loss of parts of the visual field, *e.g.*, in form of hemianopsia, or paramount contraction of the field on one side, generally the anæsthetic side of the body.

V.—Papers on Hypnotism, Hysterical Somnambulism and Double Consciousness.

Dr. Azam[42] has collected in his book a number of papers written by him on these subjects. The works of Braid drew his attention to the study of hypnotism, and he reprints here a paper on hypnotism published in 1860, and of historical interest as the first publication in France on the subject; in this paper he gives an account of his own experiments on the lines already indicated by Braid. It is difficult to realise to-day, now that hypnotism has been the subject of such wide-spread research, that it required considerable courage in 1860 to undertake such studies, as they were then only likely to bring discredit and ridicule on the observer.

The second part of the book deals with double consciousness and somnambulism, and is largely made up of an exhaustive account of the celebrated case of Fèlida X., which was first brought to the notice of the scientific world in 1876. A short abstract of this well known case will be found in Professor James's "Principles of Psychology," vol. i., pp. 380 and 384. This patient passed into a "second" state at the age of fourteen, characterized by a complete change of character. In her "normal" or "first" state her memory only extended to the periods of her life passed in the "first" state, whilst in the "secondary" state, which in later life predominated to the almost entire exclusion of the first, she remembered the events of both "first" and "second" states.

Professor James thinks, on good grounds as it seems to us after carefully reading the case, that the secondary state was really the normal, and the primary the abnormal condition in this patient.

In a paper written in 1890, Dr. Azam says that the explanation of the curious fact that some persons have two simultaneous or alternating existences is to be found in an analysis of the phenomena of sleep, and especially of somnambulism, of which forgetfulness on waking is the principal characteristic. In this state the physical and mental activities are carried on in various degree in different cases.

The third part consists of memoirs on different subjects, being chiefly taken up by an elaborate and interesting study of the nature and origin of character, both in health and in disease, in individuals and in nations, and under different conditions of the environment.

Hypnotism.—Dr. Löwenfeld writes that hypnotism in hysteria and neurasthenia acts in several ways.

(1) Production of the hypnotic state only, a state akin to natural sleep, is useful in irritable conditions of the nervous system, in insomnia, certain forms of headache, mental anxiety and perturbation.

(2) Suggestion: Very often a condition of deep sleep is not necessary for suggestions to take effect. There are also persons so amenable to suggestion that hypnosis is unnecessary; this is especially the case in children. In other persons suggestion can only be effectual during deep sleep. Suggestions must be adapted to the condition of the patient, to his mental individuality, and to the special nature of the symptoms to be removed.

(3) Method of Breuer and Freud, see p. 125.

Therapeutically suggestion is of value in enabling isolated disturbances originating in the organ of mind, the cerebral cortex, to be acted upon apart from the symptoms of disease which may be associated with them.

Hypnotism can by no means remove the general hysterical or neurasthenical condition, but can only act on special symptoms.

As to the indications for hypnotic treatment there is much difference of opinion: many would keep it as a last resource, others would employ it at once whenever a suitable case presents itself. The author prefers the use of other measures when they will give similar results to hypnosis, and generally does not make use of hypnotism in such cases on the ground that a psychical influence (non-hypnotic suggestion) on the patient may be associated with every kind of treatment—in a certain sense *is* always so associated—and that hypnotism will not effect a cure more promptly or decidedly.

Specially capable of influence through hypnosis are hysterical symptoms of the more fixed character, paralysis, anæsthesia, hyperæsthesia, contractures, and frequently recurring convulsions, and many neurasthenic symptoms, such as loss of sleep, of appetite, and uncontrollable ideas. The drawbacks to hypnosis are the uncertainty of its action, not every patient being hypnotisable; that in full hypnosis with pronounced suggestibility, therapeutic suggestions may have no effect; that the results are often temporary, patients are relieved immediately after hypnotism, but by the evening or the next morning all their troubles have returned; and that one only out of many symptoms may be influenced by it. Hypnotism is in general more useful in hysteria than in neurasthenia. The failure of suggestion is partly attributable to the fact that to be effectual its influence must last into the post-hypnotic state, into the time after hypnosis, and this demands a high degree of susceptibility to suggestion.

The author's experience leads him to refer the unfavourable effects of hypnotism largely to want of adaptive skill on the part of the hypnotiser. In the neurotic who are prejudicially affected by procedures quite harmless in the healthy, this is a fact of especial importance, and the use of hypnosis demands prudence and careful adaptation to the patient's individuality. In persons subject to hysterical attacks these may be brought on by hypnotic procedures. Just as other therapeutic measures, cold baths, massage, &c., may have bad effects on some individuals, so may hypnotism, but this mode of treatment prudently carried out by an expert, does not certainly entail more risk in itself than most of the other means of cure daily employed in nervous diseases.

Hypnotic treatment should not however be undertaken too lightly. The possession of a battery does not *ipso facto* constitute a skilled electrician, and the mere knowledge of certain methods of inducing hypnotism does not entitle anybody to put them into practice.

The full description by Charcot of the "greater hypnotism" with its distinct phases of cataleptic, lethargic and somnambulistic conditions, has not been confirmed nor observed outside the Salpêtrière by the many investigators of hypnotic phenomena. That the observers at the Salpêtrière saw what they described Dr. Löwenfeld does not doubt, but he thinks that the phenomena were excited in persons prepared for them, and easily influenced. He considers that further experience has shown that the hypnotic state is not confined to persons of hysterical dispositions.

Dr. E. Mesnet[43] reports the case of a girl aged 17 who had suffered from hip disease, and had always been delicate and anæmic, but was never troubled with nervous disorders until March, 1872, when she had rachialgia with loss of power and sensation in the legs. From being morose and uncommunicative she abruptly underwent a change in character, becoming talkative and gay. In April, after breakfast one day, she suddenly lost consciousness and fell into a state of sleep, which lasted for an hour and from which she could not be roused by any means. When she awoke she expressed great surprise and had no memory of what had passed. The attack returned regularly for four days at the same hour, and on the fifth a second one of the same kind came on after dinner. There was complete relaxation of the limbs, loss of all the senses for communication with the